

CHRONIC PAIN SELF-EFFICACY AS A MEDIATOR OF THE LINK BETWEEN ROMANTIC ATTACHMENT INSECURITY, INDIVIDUAL FUNCTIONING, AND COUPLE SATISFACTION: A PRELIMINARY STUDY

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ABSTRACT

This preliminary study was inspired by the *Attachment-Diathesis Model of Chronic Pain (ADMCP)* and examined pain self-efficacy as a mediator of the relation between people's insecure romantic attachment and individual functioning, as well couple satisfaction. This study used a sample of 45 adults with chronic pain from the community who have been in couple relationships for at least 6 months. Participants completed self-report measures. Direct links were obtained between 1) insecure romantic attachment (anxiety over abandonment) and pain self-efficacy, 2) pain self-efficacy and individual functioning, 3) insecure romantic attachment and low individual functioning, and 4) insecure romantic attachment and lower couple satisfaction. Results also showed that pain self-efficacy significantly mediates the relation between anxiety over abandonment and individual functioning, thus adding to existing literature as well as providing more support for the *ADMCP*. Future research directions are discussed along with clinical implications.

Keywords: Chronic Pain. Romantic Attachment. Pain Self-Efficacy. Individual Functioning.

RESUMO

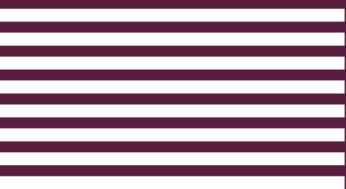
Este estudo preliminar foi inspirado no *Attachment-Diathesis Model of Chronic Pain - ADMCP* e investigou a autoeficácia no manejo da dor como um mediador da ligação entre estilo de apego inseguro nas relações afetivas, funcionamento individual e satisfação conjugal. Este estudo utilizou uma amostra de 45 adultos da comunidade com dor crônica e que estavam em um relacionamento há pelo menos 6 meses. Participantes responderam a questionários de autorrelato. Foram obtidas

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relações diretas entre 1) estilo de apego inseguro nas relações afetivas (ansiedade de abandono) e autoeficácia no manejo da dor, 2) autoeficácia no manejo da dor e funcionamento individual, 3) estilo de apego inseguro nas relações afetivas e limitações no funcionamento individual e 4) estilo de apego inseguro nas relações afetivas e menor satisfação conjugal. Os resultados também mostraram que a autoeficácia no manejo da dor interfere significativamente na relação entre ansiedade de abandono e funcionamento individual, corroborando a literatura existente bem como fornecendo mais suporte para a ADMoCP. São discutidas futuras direções de pesquisa bem como implicações clínicas.

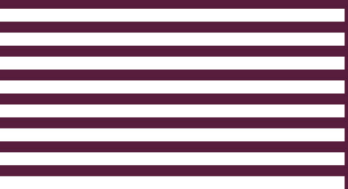
Palavras-chave: Dor Crônica. Apego nas relações afetivas. Autoeficácia no manejo da dor. Funcionamento Individual.

INTRODUCTION

Pain can be defined as “an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage” (Merskey & Bogduk, 1994, p. 210) and it is considered chronic when it persists beyond 3 to 6 months or normal healing time (OSPINA; HARSTALL, 2002). The experience of pain is subjective, and research has recognized that pain is indeed a complex biopsychosocial phenomenon that includes sensory, affective, cognitive, and social components. As pain becomes chronic, its affective, cognitive, and social components become increasingly important (BRUNS, 2008). The current preliminary study contributes to the literature on these components, by examining the direct and indirect links between insecure romantic attachment, pain self-efficacy, individual functioning, and couple satisfaction among people who live with chronic pain and are in couple relationships.

Self-efficacy refers to an individual’s belief toward his or her capacity to use personal resources to accomplish a specific task and it is developed through enactive mastery experiences, vicarious experiences, verbal persuasion, and physiological and emotional states (BANDURA, 1977, 1997). Notably, pain self-efficacy can be defined as an individual’s confidence in his or her abilities to enjoy life and participate in various activities despite pain (NICHOLAS, 2007), and research has demonstrated that pain self-efficacy is important for a successful adaptation to chronic pain (TURK; OKIFUJI, 2002; KEEFE; RUMBLE; SCIPIO; GIORDANO; PERRI, 2004).

Research over the past few years has also demonstrated that a secure attachment is associated to a better adjustment to chronic pain (see MEREDITH; OWNSWORTH; STRONG, 2008 for a literature review). According to Bowlby’s attachment theory (1969/1982, 1988), children are born with a need to survive which leads them to develop an emotional link toward their *attachment figure*, that is their caregiver (e.g., a parent or guardian). In response to stressors (e.g., pain), children use specific behaviours named *attachment behaviours* (e.g., crying, following, etc.) in order to obtain protection, comfort, and support from their attachment figure, and ultimately achieve a feeling of security. Through repeated interactions with the attachment figure, children develop *internal working models* (or mental models) of the self (i.e., representation of the self as worthy or unworthy of love and support) and of

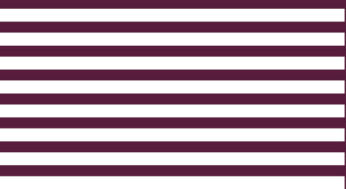


others (i.e., representation of the probability that others will be available or helpful when called upon for support). When the attachment figure responds adequately, consistently, and is sensitive to the child's needs, the child will develop a secure attachment and will be able to continue to explore his or her environment effectively (BOWLBY, 1973). Conversely, when a parental figure is often unavailable, neglects the child's needs, or offers inconsistent support, the child will develop an insecure attachment (BOWLBY, 1969/1982).

The availability and responsiveness of the attachment figure are important for the child's development because they form a secure base that gives the child the confidence and the courage to explore the environment, engage in a variety of activities, and accept new challenges (Bowlby, 1988). The attachment figure would encourage the child's autonomy while still remaining available in case of need. This secure base would thus lead to an increase in exploratory behaviour and pursuit of goals, and an increase in learning experiences and discoveries. Through these experiences, an individual would develop a feeling of self-efficacy. In fact, a study has shown that the more a secure base was perceived as being secure, the more individuals were willing to engage in exploratory activities, the more self-efficacy they reported in accomplishing goals, and the more they perceived their goals as being achievable (FEENEY, 2004).

The behavioural attachment system and the internal working models developed during childhood would be maintained throughout the lifespan (BOWLBY, 1980) and usually, the adult attachment figure is the romantic partner (HAZAN; SHAVER, 1987). Thus, adult romantic attachment would influence expectations, perceptions, and behaviours of individuals in their personal and romantic functioning (MIKULINCER; SHAVER, 2007). Many researchers conceptualize adult romantic attachment as a two-dimensional model: *anxiety over abandonment* (i.e., worries or fears about being rejected or abandoned by one's partner) and *avoidance of intimacy* (i.e., discomfort with closeness and emotional intimacy; MIKULINCER; GOODMAN, 2006). An individual with an insecure attachment would have a high score on one or both of these dimensions whereas an individual with a secure attachment would obtain a low score on both dimensions.

According to the *Attachment-Diathesis Model of Chronic Pain* (MEREDITH et al., 2008), pain (as a stressor) would activate attachment-related cognitive appraisals (toward pain, the self, and support) as well as responses to these appraisals (coping strategies, support seeking behaviour, emotional states), which would in turn impact one's adaptation to chronic pain. The current preliminary study was inspired by this model and examined the mediating role of pain self-efficacy (a self-appraisal) on the relation between insecure romantic attachment and individual functioning, and on the relation between insecure romantic attachment and couple satisfaction, as well as direct links between these variables.



ROMANTIC ATTACHMENT AND PAIN SELF-EFFICACY

The relation between romantic attachment and self-efficacy has been studied in various contexts. Nevertheless, to our knowledge, only one study has examined links between romantic attachment and pain self-efficacy. Results indicated that pain self-efficacy scores were higher for individuals with secure or dismissing attachment styles (positive model of self) compared to those with preoccupied or fearful attachment styles (negative model of self). Results also demonstrated that comfort with intimacy was positively associated to pain self-efficacy (MEREDITH et al., 2006).

PAIN SELF-EFFICACY AND INDIVIDUAL FUNCTIONING

Over the past few years, there has been much interest for the relation between pain self-efficacy and functioning in individuals who have chronic pain. A literature review, including cross-sectional and longitudinal studies, reported that individuals who have high scores of pain self-efficacy had lower levels of psychological distress and pain intensity (KEEFE et al., 2004). Numerous studies have since provided additional support for the relation between low pain self-efficacy and various pain outcomes, such as psychological distress, depression, anxiety, fear of pain, pain catastrophizing, pain intensity, and pain interference with daily activities (MEREDITH et al., 2006; TAYLOR; DEAN; SIEGERT, 2006; MARKS, 2007; WOBY; ROACH; URMSTON; WATSON, 2007; SARDÁ; NICHOLAS; ASGHARI; PIMENTA, 2009; SÁNCHEZ; MARTÍNEZ; MIRÓ; MEDINA, 2011; MIRÓ; MARTÍNEZ; SÁNCHEZ; PRADOS; MEDINA, 2011; CHAN; HADJISTAVROPOULOS; CARLETON; HADJISTAVROPOULOS, 2012; SHIPTON; PONNAMPERUMA; WELLS; TREWIN, 2013).

However, it is worth noting that the majority of these studies have been conducted in other countries (e.g., Spain, United Kingdom, Iran, Netherlands, Brazil, Australia, and New Zealand; SÁNCHEZ et al., 2011; MIRÓ et al., 2011; WOBY et al., 2007; SARDÁ et al., 2009; MEREDITH et al., 2006; SHIPTON et al., 2013; TAYLOR et al., 2006) and the experience of pain can vary from one culture to another. Therefore, the current study contributes to the existing literature because it was conducted in Canada. Many of these studies have also recruited individuals with a specific type of pain or used samples consisting solely of individuals from specialized pain clinics. Because characteristics of people who live with pain in the community could be different, the current study recruited people within the community with various types of chronic pain.

PAIN SELF-EFFICACY AND COUPLE SATISFACTION

More recently, researchers have taken interest in the impact of chronic pain on the couple (see Romano, Cano, & Schmaling, 2011; Lafontaine, Greenman, Péloquin, Bélanger & Nouwen, accepted,



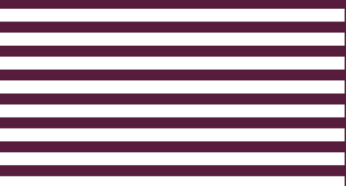
for literature reviews). A few dimensions related to the experience of pain, such as severity/intensity, disability, functional limitations, activity levels, and pain behaviour, have been empirically tested with couple satisfaction and the links have been sometimes positive, sometimes negative, or even inexistent (see Leonard, Cano, & Johansen, 2006 for a literature review). More research is needed to determine if other variables linked to the experience of pain, such as pain self-efficacy, could be associated to couple satisfaction within couples where one partner lives with chronic pain.

ROMANTIC ATTACHMENT AND INDIVIDUAL FUNCTIONING

The results of many studies confirm that secure attachment is associated to a better adjustment to chronic pain. Two recent literature reviews demonstrated that compared to securely attached individuals, individuals who were insecurely attached reported more pain-related distress, more physical symptoms, higher levels of pain-related stress, anxiety, depression, and pain catastrophizing, as well as higher levels of pain intensity and disability (MEREDITH et al., 2008; PORTER; DAVIS; KEEFE, 2007). However, the mechanisms that activate this relation have yet to be identified.

It is worth noting that none of these studies have reported using samples consisting exclusively of individuals in couple relationships. Despite their findings, the attachment system activation could be different for people who are single, so the current study required participants to be involved in couple relationships for at least 6 months.

Furthermore, many of the studies previously mentioned (including studies on pain self-efficacy and individual functioning) have used the *Hospital Anxiety And Depression Scale* (ZIGMOND; SNAITH, 1983; WOBY et al., 2007; SÁNCHEZ et al., 2011; MIRÓ et al., 2011), the *Center for Epidemiologic Studies – depression scale* (RADLOFF, 1977; CIECHANOWSKI; SULLIVAN; JENSEN; ROMANO; SUMMERS, 2003, cited in MEREDITH et al., 2008; MARKS 2007; SHIPTON et al., 2013) and the *Depression Anxiety Stress Scale* (LOVIBOND; LOVIBOND, 1995; MEREDITH et al., 2005; MEREDITH; STRONG; FEENEY, 2007, cited in MEREDITH et al., 2008; MEREDITH et al., 2006; SARDÁ et al., 2009). Although the use of the same questionnaire can assure consistency across findings, these questionnaires relate specifically and solely to anxiety and depressive symptoms, and as described by Romano et al. (2011), “any attempt to understand the patient suffering from chronic pain must include an assessment of the psychosocial context in which the patient functions” (p. 98). Indeed, chronic pain could impact an individual’s interpersonal relationships and social role, and researchers have demonstrated that these are central components to an individual’s well-being and life satisfaction (see UMPHRESS; LAMBERT; SMART; BARLOW; CLOUSE, 1997). Therefore, the current study adds to the existing literature by using a questionnaire that not only measured a person’s functioning by assessing distress symptoms related to anxiety and depression, but that also took into account an individual’s interpersonal functioning and performance in social roles (*Outcome Questionnaire*; LAMBERT et al., 1996). It seemed particularly relevant to include the interpersonal and social aspects of a person’s functioning given the chosen theoretical framework.



ROMANTIC ATTACHMENT AND COUPLE SATISFACTION

Finally, research among the general population has shown that insecure attachment is associated to lower levels of couple satisfaction compared to secure attachment (FEENEY, 2008; see MIKULINCER; SHAVER, 2007, for a literature review). When looking at research on couples with one partner who lives with chronic pain, couple dissatisfaction has often been reported (see Romano et al., 2011; Lafontaine et al., accepted, for literature reviews). However, study results seem to be inconsistent, as other studies have shown that patients with migraines and pelvic/prostatic pain have couple satisfaction rates similar to those of couples from a control group (BASOLO-KUNZER; DIAMOND; MALISZEWSKI; WEYERMAN; REED, 1991; SMITH; PUKALL; TRIPP; NICKEL, 2007) and other studies reported couple satisfaction rates within the norm (see ROMANO et al., 2011). Given this contradictory evidence, further research on couple satisfaction within this population is warranted. An attachment framework seems particularly useful, and could potentially explain why some of the past results have been incoherent. Furthermore, if there were in fact a relation between insecure attachment and lower couple satisfaction within this population, it would be relevant to examine which variables associated to the experience of pain additionally contribute to lower couple satisfaction.

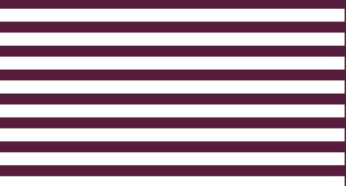
OBJECTIVE AND HYPOTHESIS

The current preliminary study sought to investigate the mediating role of pain self-efficacy on the relation between insecure romantic attachment and individual functioning, and on the relation between insecure romantic attachment and couple satisfaction, within a community sample of individuals with chronic pain that are in couple relationships. We hypothesized that romantic attachment insecurity (anxiety over abandonment and avoidance of intimacy) would predict lower pain self-efficacy, and that pain self-efficacy would be positively associated to individual functioning and couple satisfaction. We also hypothesized that romantic attachment insecurity would predict lower scores of individual functioning and couple satisfaction. Finally, we hypothesized that pain self-efficacy would mediate the relation between insecure romantic attachment and individual functioning, as well as the relation between insecure romantic attachment and couple satisfaction.

METHOD

PARTICIPANTS

Eligibility criteria included: a) being at least 18 years of age, b) having a good understanding of French or English, c) living in an Eastern Canadian province, d) being in a relationship for at least 6



months, and d) reporting pain every day or almost every day for at least 3 months within one or more particular areas of the body. Participants were recruited with the use of posters and pamphlets in various clinics (medical, pain, and physiotherapy) and with the help of associations for people who report chronic pain that sent e-mails to their members and posted study information on their website.

The sample consisted of 45 participants, namely 11 men (24.4%) and 34 women (75.6%). The mean age of participants was 41 years (range = 19.5 to 71.6; $SD = 14.22$) and they had been in a relationship for an average of 13.63 years (range = 8 months to 51.16; $SD = 13.04$). Most individuals were married (60%) or common law (22.2%) and the majority did not have children (55.6%). Their average annual income was of \$27 538.44 (range = 0 to 90 000; $SD = 23\ 625.58$).

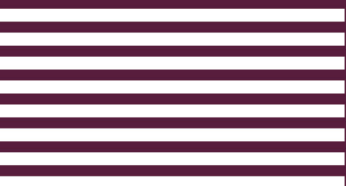
PROCEDURES

Participants completed a paper-pencil version of the questionnaire or an online version on a secure website. Before starting, they received an information letter including a list of community resources. After participating, they received a compensation of 20\$ by mail. The information was kept confidential and anonymous. A Research Ethics and Integrity Committee from a Canadian university have approved this study.

MEASURES

Socio-demographic Information. Participants answered questions related to socio-demographic information such as age, duration of couple relationship, daily occupation, and annual revenue. They also answered a series of questions related to pain, such as the diagnosis of chronic pain and the usage of pain relief medication.

Experiences in Close Relationships (BRENNAN; CLARK; SHAVER, 1998; LAFONTAINE; LUSSIER, 2003). The ECR is a 36-item questionnaire that measures romantic attachment. It is comprised of two scales: anxiety over abandonment (e.g. "I need a lot of reassurance that I am loved by my partner") and avoidance of intimacy (e.g. "I try to avoid getting too close to my partner"). Each scale includes 18 items that are rated on a Likert scale (from 1 = *disagree strongly* to 7 = *agree strongly*). Total mean scores for each subscale were calculated and the means obtained were used as indexes for anxiety over abandonment and avoidance of intimacy. Acceptable reliability coefficients were previously reported for both scales and a comparison study concluded that the ECR demonstrated superior psychometric data compared to three other well-known attachment questionnaires (FRALEY; WALLER; BRENNAN, 2000). Alpha coefficients yielded for the present study were .93 for the anxiety scale and .82 for the avoidance scale, in comparison to .91 and .94 respectively for the English version (Brennan et al., 1998) and .88 for both subscales for the French version (LAFONTAINE; LUSSIER, 2003).

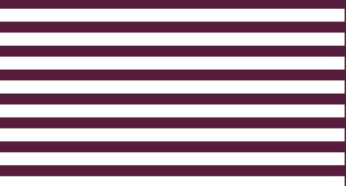


Pain Self-Efficacy Questionnaire (NICHOLAS, 2007; LAFONTAINE, 2008⁵). The PSEQ is a 10-item questionnaire measures the confidence people with ongoing pain have in performing activities despite pain. It includes a variety of functions (household chores, socialization, work, and coping without medication) and includes items such as: "I can still do many of the things I enjoy doing, such as hobbies or leisure activity, despite pain". Items are rated on a Likert scale (from 0 = *not at all confident* to 7 = *completely confident*). A mean score was calculated and a high score represented a high level of pain self-efficacy. This questionnaire has excellent internal consistency and its reliability over a 3-month period is high (ASGHARI; NICHOLAS, 2001). The internal consistency coefficient obtained for the present study was .95 compared to .92 for the original version.

Outcome Questionnaire (LAMBERT et al., 1996; FLYNN et al., 2002). The OQ is a 45-item questionnaire that measures functioning in 3 domains: distress symptoms (heavily loaded for depression and anxiety), interpersonal relationships, and social roles. It included items such as "I feel irritated", "I am concerned about family troubles", and "I feel I am not doing well at work/school". Responses are recorded on a Likert scale (from 0 = *never* to 4 = *almost always*). The higher the score, the more the person had distress symptoms, difficulties with interpersonal relationships and social roles so the more his/her quality of life was diminished. A total score above 63 is considered clinically significant. For the current study, a total mean score was privileged. This questionnaire has excellent psychometric properties, for example 3-week reliability has shown to be adequate ($r = .84$). The current study obtained an alpha of .94 compared to .93 for the original version.

Dyadic Adjustment Scale (SABOURIN; VALOIS; LUSSIER, 2005). The DAS-4 is a briefer version of the original 32-item DAS (Spanier, 1976), a widely used and psychometrically validated self-report measure of dyadic adjustment for individuals who are in a romantic relationship. The briefer 4-item version includes items such as "How often do you discuss or have considered divorce, separation, or terminating your relationship?" Varying Likert scales are used (from 0 = *always* to 5 = *never* and from 0 = *extremely unhappy* to 6 = *perfectly happy*). Total mean scores were calculated and higher scores reflect higher couple satisfaction. The DAS-4 has acceptable classification rates of distressed and non-distressed couples (.84 and .92) in comparison to the original DAS-32, and has better predictive validity (couple dissolution over a 2-year period) than the original DAS-32. Additionally, the DAS-4 has been demonstrated to be significantly less biased by respondent-based social desirability than the original DAS-32 (SABOURIN et al., 2005). The alpha coefficient obtained for the current study was .85 compared to .84 for the original version.

⁵ In order to achieve a French version that is conceptually equivalent, a forward-translation and an expert panel were used.



RESULTS

PRELIMINARY ANALYSIS

An evaluation of missing data using Little's MCAR test revealed that the data may be assumed missing completely at random ($\chi^2(1444) = .000, p > .05$) and that there were no variables with more than five percent missing data. We used the Expectation Maximization (EM) method in order to estimate missing values. Mahalanobis distance was carried out, and no multivariate outliers were identified.

DESCRIPTIVE STATISTICS

The final sample consisted of 45 participants, no data were deleted and the full dataset was used. Means and standard deviations obtained for each questionnaire are presented in Table 1 along with Pearson correlations. Results indicate that a high level of insecure attachment (both anxiety and avoidance) was linked to lower pain self-efficacy, lower functioning, and lower couple satisfaction. Both dimensions of insecure attachment (anxiety and avoidance) were also positively correlated⁶². Furthermore, pain self-efficacy was negatively linked with individual functioning, and positively linked to couple satisfaction. Finally, lower functioning was associated to lower couple satisfaction.

Table 1 - Descriptive Statistics and Intercorrelations between Pain Self-efficacy, Romantic Attachment, Individual functioning, and Couple satisfaction

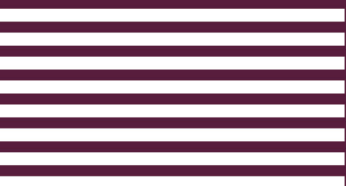
	<i>M</i>	<i>SD</i>	1	2	3	4	5
1. Attachment anxiety	3.31	1.30	–	.62**	-.32*	.61**	-.41**
2. Attachment avoidance	2.37	.86		–	-.26	.39**	-.67**
3. Pain self-efficacy	2.65	1.53			–	-.51**	.24
4. Individual Functioning	1.34	.54				–	-.40**
5. Couple satisfaction	4.02	.93					–

Note. Mean scores were computed on a 7-point Likert scale for pain self-efficacy and romantic attachment, on a 5-point Likert scale for psychological distress, and on 6-point Likert scale for couple satisfaction with 1 item on a 7-point Likert scale.

* $p < .05$, two-tailed.

** $p < .01$, two-tailed.

⁷ It is worth noting that the attachment anxiety dimension and the attachment avoidance dimension have been shown to be correlated in previous research (Cameron, Finnegan, & Morrey, 2012).



MEDIATION ANALYSIS

Two models examining the degree to which pain self-efficacy mediated the relation between romantic attachment and individual functioning were tested (Table 2), as well as two models examining the mediating role of pain self-efficacy on the relation between romantic attachment and couple satisfaction (Table 3). As recommended by Preacher and Hayes (2008), bias corrected (BC) confidence intervals were used with the bootstrapping (5000 samples) method in order to obtain indirect effects. This is a nonparametric resampling procedure that estimates properties of estimators based on samples drawn from the original observations, even when the underlying distribution is unknown and may not be normally distributed (Bollen & Stine, 1990). The SPSS macro PROCESS (version 2.10, Hayes, 2014) was used to conduct the mediation analyses.

As can be seen in Table 2 and Figure 1, anxiety over abandonment predicted lower pain self-efficacy ($a = -.378$) and low pain self-efficacy predicted lower individual functioning ($b = -.125$). CIs were entirely above zero (CI = .006 to .124) for the indirect effect ($ab = .047$). There was also evidence of a significant relation between anxiety over abandonment and lower functioning ($c' = .206$). Therefore, pain self-efficacy significantly mediated the relation between anxiety over abandonment and individual functioning. Conversely, avoidance of intimacy did not predict pain self-efficacy ($a = -.457$), although low pain self-efficacy did predict lower individual functioning for this model ($b = -.157$). There was evidence of a significant relation between avoidance of intimacy and lower functioning ($c' = .171$). CIs included zero (CI = -.003 to .194) for the indirect effect ($ab = .072$), indicating that pain self-efficacy did not significantly mediate the relation between avoidance of intimacy and individual functioning.

Table 2 - Results of Mediation Analysis for Insecure Romantic Attachment, Pain Self-efficacy, and the Outcome Questionnaire

Mediation 1		Consequent						
		M (PSEQ)				Y (OQ)		
Antecedent		Coeff.	SE	p		Coeff.	SE	p
X (ANX)	a	-.378	.169	<.05	c'	.206	.049	<.001
M (PSEQ)					b	-.125	.042	<.05
Constant	i1	3.900	.600	<.001	i2	.991	.231	<.001
		R = .104					R = .482	
		F(1,43) = 5.012, p = .030					F(2,42) = 19.5449, p <.001	
Mediation 2								
Antecedent		Coeff.	SE	p		Coeff.	SE	p
X (AVOID)	a	-.457	.261	.087	c'	.171	.082	<.05
M (PSEQ)					b	-.157	.046	<.01
Constant	i1	3.732	.656	<.001	i2	1.350	.264	<.001
		R ² = .067					R ² = .331	
		F(1,43) = 3.071, p = .087					F(2,42) = 10.4096, p <.001	

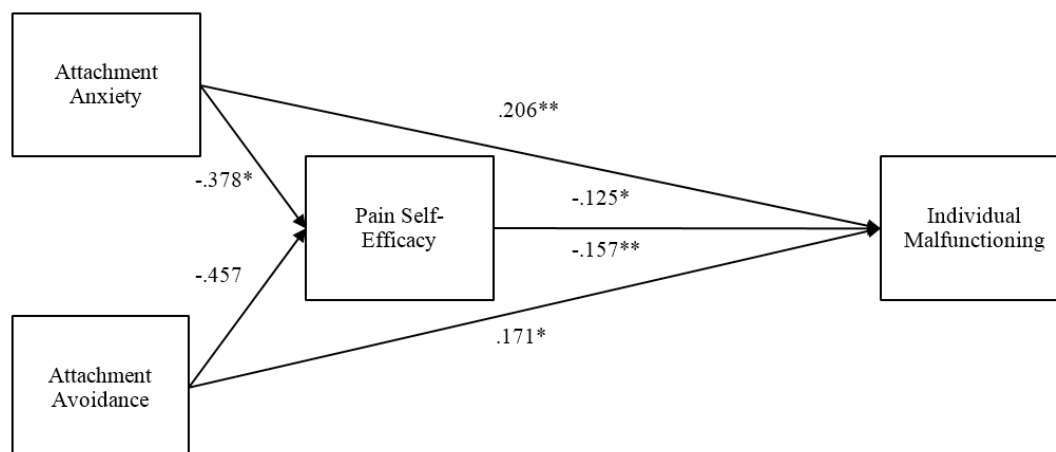


Figure 1 - Path analysis showing direct and indirect effects between insecure romantic attachment (anxiety and avoidance), pain self-efficacy, and individual functioning

As shown in Table 3 and Figure 2, anxiety over abandonment predicted lower pain self-efficacy ($a = -.378$) but pain self-efficacy did not predict couple satisfaction ($b = .074$). The direct effect, that is the relation between anxiety over abandonment and couple satisfaction, was significant ($c' = -.264$). CIs included zero ($CI = -.107$ to $.025$) for the indirect effect ($ab = -.028$), indicating that pain self-efficacy did not significantly mediate the relation between anxiety over abandonment and couple satisfaction. Finally, in the fourth model, avoidance of intimacy did not predict pain self-efficacy ($a = -.457$) and pain self-efficacy did not predict couple satisfaction ($b = .045$). Nevertheless, a significant relation was obtained between avoidance of intimacy and couple satisfaction ($c' = -.697$). CIs included zero ($CI = -.108$ to $.015$) for the indirect effect ($ab = -.021$), indicating that pain self-efficacy did not significantly mediate the relationship between avoidance of intimacy and couple satisfaction.

Table 3 - Results of Mediation Analysis for Insecure Romantic Attachment, Pain Self-efficacy, and the Dyadic Adjustment Scale

Mediation 3		Consequent						
		M (PSEQ)				Y (DAS)		
Antecedent		Coeff.	SE	p		Coeff.	SE	p
X (ANX)	<i>a</i>	-.378	.169	<.05	<i>c'</i>	-.264	.105	<.05
M (PSEQ)					<i>b</i>	.074	.090	.416
Constant	<i>i1</i>	3.900	.600	<.001	<i>i2</i>	4.699	.498	<.001
		R ² = .104				R ² = .181		
		F(1,43) = 5.012, <i>p</i> = .030				F(2,42) = 4.647, <i>p</i> <.05		
Mediation 4								
X (AVOID)	<i>a</i>	-.457	.261	.087	<i>c'</i>	-.697	.128	<.001
M (PSEQ)					<i>b</i>	.045	.072	.535
Constant	<i>i1</i>	3.732	.656	<.001	<i>i2</i>	5.551	.412	<.001
		R ² = .067				R ² = .448		
		F(1,43) = 3.071, <i>p</i> = .087				F(2,42) = 17.014, <i>p</i> <.001		

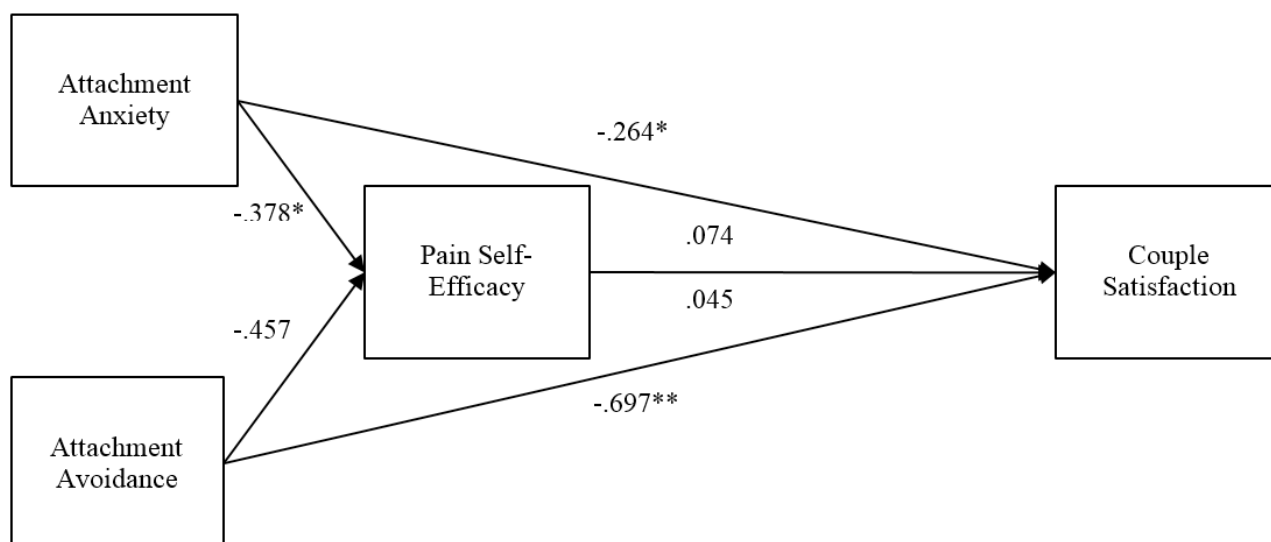
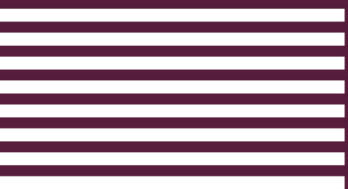


Figure 2 - Path analysis showing direct and indirect effects between insecure romantic attachment (anxiety and avoidance), pain self-efficacy, and couple satisfaction

DISCUSSION

Inspired by the *Attachment-Diathesis Model of Chronic Pain* (MEREDITH et al., 2008), this preliminary study examined the mediating role of pain self-efficacy on the relation between romantic attachment insecurity (anxiety over abandonment and avoidance of intimacy) and individual functioning, and on the relation between romantic attachment insecurity and couple satisfaction, as well as direct links between these variables.

First, as expected, anxiety over abandonment was associated to lower pain self-efficacy. That is, individuals worried about being rejected/abandoned by their partner had less confidence in their capacity to pursue activities despite pain. This finding is consistent theoretically (MEREDITH et al., 2008; BOWLBY, 1988) and empirically (MEREDITH et al., 2006). However, avoidance of intimacy did not significantly predict lower pain self-efficacy, although the relation obtained was negative as expected. Both dimensions were expected to be linked to lower pain self-efficacy because individuals with an insecure attachment would not perceive a secure base in their attachment figure and this would negatively affect their engagement in exploratory activities. One possible explanation for this weaker relation is that avoidant individuals have a positive internal working model of self (BOWLBY, 1973) and are emotionally self-sufficient (BOWLBY, 1980). The 4-group model of attachment styles distinguishes between two types of avoidant individuals: dismissing individuals (positive internal working model of self and negative internal working model of others) who would be autonomous, and fearful individuals (negative internal working models of self and others) who would have difficulties with autonomy

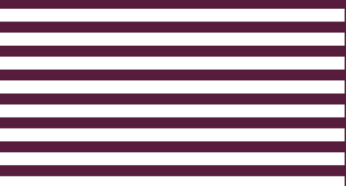


(BARTHOLOMEW, 1990). Past research has obtained higher pain self-efficacy scores for individuals with a dismissing attachment style compared to those with a fearful attachment style (Meredith et al., 2006), so our sample may have consisted of individuals with a dismissing attachment style.

Second, our results showed that high pain self-efficacy was associated to greater individual functioning, which is consistent with past research findings (Keefe et al., 2004). Individuals who are confident in their ability to pursue activities despite pain also report less distress symptoms and fewer difficulties with interpersonal relationships and social roles. However, pain self-efficacy was not linked to couple satisfaction. Chronic pain can impact the couple in different ways and the person with pain may need to rely more on their partner, so perhaps variables related to the appraisal of the partner (e.g. perception of partner's support, perception of partner's reactions towards pain behavior) could better predict couple satisfaction. Given that past research studies have often reported couple dissatisfaction among this population (ROMANO et al., 2011), this matter deserves to be further investigated. Furthermore, since chronic pain can affect both partners in the relationship (ROMANO et al., 2011), it would be interesting for future research to conduct dyadic data analysis in order to consider how both partners in the couple mutually influence each other. The use of this type of statistical analyses allows to examine actor-partner effects ("the impact an actor's independent variable score has on his or her dependant variable score, controlling for his or her partner's independent variable [and] the impact of the partner's independent variable score on the actor's dependant variable score, controlling for the actor's independent variable"; KENNY; KASHY; COOK, 2006, p. viii).

Third, our results indicated that individuals who were either anxious about being rejected/abandoned by their romantic partner or uncomfortable with closeness and emotional intimacy, had higher distress symptoms, more difficulties with interpersonal relationships and social roles, and lower couple satisfaction. This makes sense theoretically, because individuals with an insecure attachment have negative internal working models of the self and/or others, which influences their behaviors and relationships, and they do not perceive a secure base in their romantic partner, so they would have less effective emotion regulation skills and would engage in secondary attachment strategies (SHAYER; MIKULINCER, 2002; MIKULINCER; SHAYER; PEREG, 2003). These results are also consistent with results of past research on romantic attachment and psychological distress within the context of chronic pain (MEREDITH et al., 2008) as well as results on attachment and couple satisfaction within the general population (FEENEY, 2008; MIKULINCER; SHAYER, 2007).

Finally, our results demonstrated that pain self-efficacy was a mediator of the relation between romantic attachment insecurity and lower individual functioning, but only for attachment anxiety. This suggests that individuals with chronic pain who worry about being rejected/abandoned by their partner would report more distress symptoms and more difficulties with interpersonal relationships and social roles, because they would lack confidence in their ability to pursue activities and enjoy life despite pain. Contrary to expectations, pain self-efficacy did not mediate the relation between avoidance of intimacy and individual functioning, or between either forms of romantic attachment insecurity (anxiety and

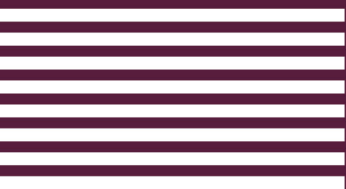


avoidance) and couple satisfaction. Although our results were leaning in the predicted directions, a possible explanation for the absence of significant mediation is the small sample size and the weak statistical power. In order to have a statistical power of 0.8 with an alpha of 0.05 and a medium effect size with two predictors (anxiety and avoidance), a sample consisting of at least 68 participants would have been needed. According to attachment theory, anxiety over abandonment is linked to a negative model of self, whereas avoidance of intimacy is linked to a negative model of others, so perhaps variables related to the appraisal of the partner (e.g. appraisal of the partner's support) would more significantly influence avoidant individuals. It would be particularly important and innovative for future researchers to try to identify factors related to the experience of pain that may better predict couple satisfaction for individuals living with chronic pain. Past researchers have reported low couple satisfaction rates within this population (ROMANO et al., 2011) but to our knowledge, the subject has yet to have been studied within an attachment framework and no underlying mechanisms have been identified.

Certain limitations of this study deserve to be acknowledged. Most importantly, the small sample size and the weak statistical power prevent us from generalizing results to the population. Our small sample of individuals was not homogenous and there appears to be much variability between participants, which biased study results. Also, the correlational research protocol used prevents us from inferring causality between the studied variables, despite the theoretical links proposed. It would be useful for longitudinal studies with larger samples to determine the temporal relations between the studied variables. Finally, this study used self-reported data, which also implies the possibility of other biases (e.g. social desirability or sampling bias).

CONCLUSION

This preliminary study demonstrated the importance of understanding the underlying mechanisms of the relations between insecure romantic attachment, individual functioning, and couple satisfaction among people who live with chronic pain. It contributed to existing literature by providing information on the indirect links between anxiety over abandonment and individual functioning, and the direct links between the studied variables also provide more empirical support for the *Attachment-Diathesis Model of Chronic Pain* (MEREDITH et al., 2008). It also provides interesting clinical leads. The results can help guide clinicians to develop more tailored interventions for individuals with chronic pain. For example, our findings suggest that clients who score high on anxiety over abandonment and report low personal functioning may benefit from psychotherapeutic interventions aimed at increasing their pain self-efficacy. This can be done by different techniques based on Bandura's self-efficacy theory (e.g., role playing with therapist feedback, applying learned skills to challenging situations; BANDURA, 1997). Conversely, clients who have an insecure attachment and report low couple satisfaction may benefit more from psychotherapeutic strategies aimed at increasing their attachment security rather



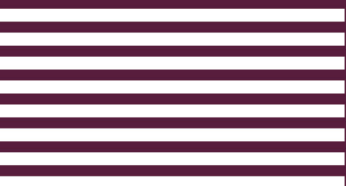
than pain self-efficacy, because we do not have conclusive proof that pain self-efficacy influences couple satisfaction. In this case, secure-based priming techniques (Mikulincer & Arad, 1999; Mikulincer & Shaver, 2001) and relationship-based or emotion-focused psychotherapeutic approaches (Goodwin, 2003; Johnson, 2004) can help increase attachment security.

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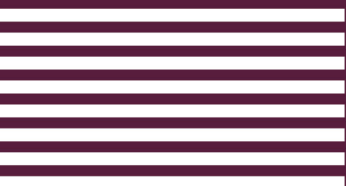
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